

The diagnosis and management of low back pain in general practice

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Abstract

An evidence based discussion, illustrated with a made up case history, of a method for approaching patients with low back pain in general practice.

Note: This article is based on the Knol entitled "The diagnosis and management of low back pain in general practice" accessed through <http://knol.google.com/k/w-kent/the-diagnosis-and-management-of-low/1blm6ty1i8a7z/5?collectionId=1bbsle13m97c0.391#> on the 4th July 2011

Introduction

Good verbal and non-verbal communication skills are important in all clinical encounters because they can influence both diagnosis and disease management. The history is the main factor in ~75-85% of medical diagnosis.¹⁻³ In general practice the lack of specialist investigations combined with the time constraints of a consultation increases the importance of GPs developing effective and efficient communication styles.⁴ To aid doctors many consultation models have been developed. The design and use of these consultation models has evolved from a biomedical model with paternalistic doctor-centred communication to a pluralistic style exploring the biopsychosocial aspects of disease within a disease-illness framework. Newer consultation strategies also emphasises the importance of patient-centred communication⁵ and the complementary aspects of different consultation models ([link 1](#)). This allows flexibility in the consultation to develop a greater understanding of the patient's reasons for consulting and their reactions to their illness; which can inform both the diagnosis and the management of disease.⁶

See:

<http://www.patient.co.uk/doctor/Consultation-Analysis.htm>

LINK 1. Consultation Models are not mutually exclusive and can be used to complement each other and develop deeper understanding in a consultation. After Walker⁷

Aims & Objectives

The aim of this essay is to discuss the diagnosis and management of low back pain (LBP) in general practice. The aim will be achieved by addressing the following objectives:

- The epidemiology & aetiology of LBP
- The economic implications of LBP for the individual and society.
- The LBP consultation
 - Triaxial (biopsychosocial) diagnosis
 - Patient-centred
 - Prognostic factors for poor outcomes
- Examining what is considered best practice for management of LBP
 - The GP as a Gatekeeper
 - Dealing with uncertainty
 - Individual management based on population guidelines.

The patient's context

The Patient's Background

Mr Dave Golding (pseudonym) is a 41 year old white British male; he is 173cm tall and weighs 89 kg (BMI 29.8). He is known to the GP because he suffers from reflux oesophagitis for which he has repeat prescriptions of Omeprazole. He left school when he was 17 year old and has had various jobs. For the last two years he has worked for a company that installs and maintains

computer networks. He is unmarried and does not have any children but lives with his brother in a 4th floor flat in a tower block with a lift. He is an ex-heavy smoker (but gave up 1 year ago after attending the smoking cessation clinic) and he drinks approximately 30 units of alcohol per week.

The Clinical Case

Mr Golding walked stiffly into the GPs office and sat down slowly complaining of back pain. The pain had started suddenly 2 days ago when he "felt a twinge" in his back as he tried to lift a computer out from under a desk. He was in an "awkward position" which he described as lifting with his legs straight and back bent over the desk with his arms at full stretch. The initial pain had eased but his back had stiffened up whilst driving around in his van for the rest of the day. His back felt best when he was lying down and was worse after periods of driving or lifting. On direct questioning he had rated the pain's severity as 7/10, it was constant, did not radiate to his lower limbs and he had no other symptoms that might suggest serious or related problems.

He had hurt his back a few times when he was younger working as a labourer and he was worried that he may have done some damage to his back which might get worse and force him to stop work early. He had not been able to work due to the discomfort. He didn't enjoy his current job because it involved a lot of driving, lifting and crawling under desks (all of which exacerbated his back pain). But he needed the money and he was worried that lifting the computer he may have "slipped a disc".

On examination Mr Golding was overweight and moved reluctantly with some discomfort. A back examination revealed reduced active range of movement and the left paraspinal muscles felt tense and contracted, but there was no tenderness on palpation or any neurological deficit.

Low back pain: the disease in context

Definition, epidemiology, & economics

Low back pain (LBP) can have great implications for both the individual and the society. LBP is defined as pain, muscle tension or stiffness localised in the area inferior to the costal margin and superior to the gluteal folds, with or without leg pain ([link 2](#))⁸⁻¹⁰ and is the most common musculoskeletal disorder seen in general practice.¹¹ The lifetime prevalence of LBP in UK adults is 70-80%,^{8,11} each year 15-45% of adults experience LBP and 5% of these will present to their General Practitioner (GP).⁸ The peak incidence is in working adults aged 35-55 years. Male and female incidence is similar, but work induced LBP is more common in men.⁸ LBP is generally self limiting with the majority (90%) of cases recovering within 6 weeks, however, recurrence is high (80% within a year) and 2-7% will develop chronic back pain (cLBP).⁸ Further complications associated

with cLBP include depression, disability, and loss of employment.¹² It is estimated that LBP costs the UK economy in excess of £12 billion per annum.¹³ This estimate includes both the direct costs of treatment and incapacity benefits as well as the indirect costs incurred by businesses through the loss of human resources.¹⁴ In general it costs more to train someone to do a job, than to rehabilitate an employee with LBP¹⁵ which emphasises the important role that a GP can have in helping people, businesses, and the economy.

(Link reproduced from RACGP9)

Available at: <http://www.racgp.org.au/afp/200406/14757>

LINK 2. Anatomical borders and landmarks used to differentiate between different sites of pain.

Aetiology

The aetiology of LBP is complex and poorly understood. Pain may arise from one or more of the back's components and the aetiology of LBP is seldom found because clinical assessment lacks the specificity to make a precise diagnosis.⁹ This complexity has been recognised along with the duration of pain in the classification of low back pain ([fig 1](#)). The majority of patients (~95%) who present to primary care have non-specific low back pain, or mechanical back pain (where a specific cause can not be diagnosed). Less than 5% have a diagnosable condition and serious conditions are rare (less than 1%).¹⁰ Thus, providing serious pathology is competently screened for GPs should be able to manage the majority of patients presenting with low back pain.

Aetiology:

- >95% Non-specific low back pain (NSLBP),
- <5% nerve root pain ,
- <1% inflammatory disease, spinal tumour or infection.

LBP is commonly further classified according to its duration*:

- Acute (less than 6 weeks),
- Sub-acute (6 to 12 weeks), and
- Chronic (more than 12 weeks)

*Although necessary for research the duration definitions are not standardised and may not be useful in clinical practice, because it is difficult to distinguish new episodes from exacerbations. Information from references⁴⁻¹⁰

FIGURE 1. Diagnostic triage and classification of LBP.

Clinical assessment of lbp

Bio-physical aspects of the history and red flags in LBP

The biological aspects of the history form the basis for discriminating between specific and non-specific causes of LBP. A GP must be competent and confident in this diagnostic triage to effectively perform their role as gatekeepers to NHS services. During the consultation the GP must clarify the nature of the pain (establishing its location, onset, type, intensity, and radiation) and any disability that it might be causing. Although rare it is also important that serious causes of LBP are not missed. Symptoms that are suggestive of serious back pathology are called red flag symptoms (**fig 2**), should be explicitly but sensitively (because they may be embarrassing for the patient) sought in all patients presenting with LBP. A systems review should also be performed to supplement the screen and to help exclude other related pathology (e.g. inflammatory causes of LBP). It is also important to perform a systematic physical examination.⁹ The doctor can use the exam to supplement the screening questions in the history to look for signs which suggest specific pathology. It is also an opportunity to identify abnormal illness behaviour (e.g. exaggerated response or inconsistent findings) which might suggest other psychological or social distress which the GP needs to recognise and treat if necessary.¹² The physical examination is also important for the patient as it can install confidence in the doctor and can be reassuring for the patient.⁹

Red flags for the cauda equina syndrome include:

- Saddle anaesthesia.
- Recent onset of bladder dysfunction or faecal incontinence.
- Major motor weakness.

Red flags that suggest spinal fracture include:

- Sudden onset of severe central pain in the spine which is relieved by lying down.
- Major trauma such as a road accident or fall from a height.
- Minor trauma, or even just strenuous lifting, in people with osteoporosis.
- Structural deformity of the spine.

Red flags that suggest cancer or infection include:

- Onset in a person over 50 years, or under 20 years, of age.
- History of cancer.
- Constitutional symptoms, such as fever, chills, or unexplained weight loss.
- Intravenous drug abuse.
- Immune suppression.
- Pain that remains when supine; aching night-time pain disturbing sleep; and thoracic pain (*which also suggests aortic aneurysm*).

The basis for these red flag recommendations is from the synthesis of national and international guidelines which are largely based on expert opinion.
Reproduced from Back pain (low) and sciatica.¹⁰

FIGURE 2. Red Flag Symptoms.

Psychological and social aspects ('yellow flags') of LBP

The question as to who will develop chronic LBP (cLBP) is important for GPs to consider in the consultation. LBP is generally self limiting with the majority (90%) of cases recovering within 6 weeks.⁸ However, recurrence is high (80% within a year) and 2-7% will develop cLBP.⁸ Further complications associated with cLBP include depression, disability, and loss of employment.¹² The early identification of patients at risk of long term problems and subsequent targeted interventions may help to reduce long term problems.¹⁶ Systematic reviews have identified that psychosocial comorbidity or 'yellow flags' (figure 5) at the onset of LBP increases the risk of cLBP and disability.^{16,13,17} Exploring yellow flags is an opportunity for the GP to explore the personal impact of the LBP on activities of daily living, work, quality of life and the obstacles to recovery and return to work. The patient's ideas, concerns, and expectations, health beliefs, attitudes, and fears about their symptoms need to be ascertained because they can all have significant implications for either a positive or negative outcome for the patient. An active coping strategy may facilitate a positive outcome but negative connotations about activity can form barriers to rehabilitation. The social implications of LBP should also be explored especially if the LBP results in disability. Families provide the context within which individuals experience their lives and a GP has the responsibility to support a patient and their family in coping with the changes which result from disease.¹⁸ For example, a life changing event following serious LBP (e.g. cauda equine) may alter the group dynamics and redefine roles within the family, which can lead to conflict and the breakdown of relationships. Conversely communication and intimacy within the family as a whole may be increased, as often flexibility and communication is required for the family to cope with the practical challenges. The health of others may also be affected because caring for a family member can influence multiple areas of caregivers' lives. These effects can be physical, psychological, and social leading to decreased physical health, impaired social and family life and increased stress, anxiety and depression.¹⁹ The social environment can also be a source of encouragement or additional resources (e.g. health-care professionals or charities). However, help from outside the family may not always be viewed as a good thing as the self-esteem of members of the family may be diminished by unwanted help.¹⁸ Socioeconomic and educational status also influences health and consultations because it has been demonstrated that people from lower educational attainment and socioeconomic status have poorer health and consult their GP more than people from higher socioeconomic status.²⁰ Interestingly this difference in consultation rates is still present even after controlling for the poorer health status of the people with lower socioeconomic status.²⁰ Awareness and identification of these issues in a consultation by exploring a patient's reasons for consulting, expectations, and understanding (e.g. Pendleton model⁷), may help to improve health education and reduce unnecessary consultations. All of these factors can also have

implications for the rehabilitation of the patient and should be considered by the doctor. If the patient's experience of the illness is not adequately explored the patient is unlikely to be satisfied with the consultation.⁶ This has been shown to reduce concordance with management plans⁶ which in the case of LBP may lead to unnecessary prolongation of the pain, and possibly disability.

The identification of the important association between "yellow flags" and cLBP has led to the development of screening instruments to help identify patients at risk of progressing to cLBP.^{17,21-23} However, a GPs assessment of a patient's risk is as accurate as the instruments currently available, and is probably the best available predictive option.¹⁷ Work related risk factors or "blue flags" (**fig 4**) are also important in determining the risk of progression to cLBP²⁴ and further screening tools are being developed.²⁴ But research to identify and improve the validity and reliability of these screening tools is needed before they can be reliably implemented.²⁵ This could result in a better understanding of the pathways involved in developing cLBP and the formulation of better more targeted interventions. However, the feasibility of multiple screening interventions within the time constraints of a consultation is questionable. A simple, uniform framework for identifying people who may benefit from further in-depth evaluation is probably of greater use and more acceptable to most GPs and patients.

Risk factors for developing or persisting chronic pain and long-term disability are called 'yellow flags'. Yellow flags are psychosocial barriers to recovery. They include:

- The belief that pain and activity are harmful.
- Sickness behaviours, such as extended rest.
- Social withdrawal, lack of support.
- Emotional problems such as low or negative mood, depression, anxiety, or feeling under stress.
- Problems or dissatisfaction at work.
- Problems with claims for compensation or applications for social benefits.
- Prolonged time off work (e.g. more than 6 weeks). Length of time off work prognostic factor: 4wks 10-20% chance will not return within yr. 3 months only small chance return to work ever.⁷
- Overprotective family.
- Inappropriate expectations of treatment, such as low expectations of active participation in treatment.

Reproduced from Back pain (low) and sciatica.¹⁰

FIGURE 3. Yellow Flags.

Work place variables identified to be associated with the development of chronic low back pain.

- physical job demands,
- ability to modify work,
- job stress,
- workplace social support or dysfunction,
- job satisfaction,
- expectation for resuming work, and
- fear of re-injury.

Information taken from Shaw et al.²⁴

FIGURE 4. Blue Flags.

Best practice for management

Gatekeeping & Referral

The diagnostic triage of discriminating between specific and non-specific causes of LBP is important to allow the GP to effectively perform their role as gatekeepers to NHS services. National guidelines¹⁰ for referral (based largely on expert opinion) suggest referral if: one or more red flag is present; there is progressive, persistent, or severe neurological dysfunction; if pain or disability is present for greater than one or two weeks or continues to be a problem despite appropriate therapy. GPs may feel the need for further investigations to help them deal with diagnostic uncertainty²⁶ but further investigations do not inform the management of non-specific LBP (because of the poor correlation between symptoms, pathology, and clinical imaging)^{8,26} and some have a risk of causing harm.²⁷ Distress & illness behaviour of patients can confuse and distort the clinical assessment and overtly or covertly exert pressure on the doctor to sanction further investigations in an attempt to find a cause.¹¹ Medicalisation of distress by doctors needs to be avoided and the somatisation of symptoms by patients needs to be identified to treat a patient appropriately and effectively.⁶ It is important that the doctor recognises and discusses these factors within the consultation to allow a joint understanding of the meaning of symptoms and appropriate management. This can be achieved by exploring the patient's agenda⁷ and identifying unhelpful health behaviours.²⁸

Effective gatekeeping also provides more general benefits to the health service. The selective referral of patients increases the prevalence of serious disease in patients seen by hospital doctors which ensures that the positive predictive value of signs and symptoms is increased.^{29,30} Conversely this also helps GPs to deal with uncertainty as the absence of signs in patients seen in general practice has a high negative predictive value in low prevalence population, which can help to make a healthcare systems more efficient.³⁰ A useful comparison is the German healthcare service where patients are encouraged to consult a GP before seeking specialist advice for LBP, but no gatekeeping system is enforced.³¹ Consequently the unsystematic, expensive, and inadequate use of healthcare resources for LBP in Germany has been observed.³¹ Further investigations should only be ordered when they are indicated by red flag symptoms or clinical suspicion of pathology and can be interpreted in the context of the clinical presentation to aid the diagnosis.

Management

Identifying the patient's concerns in the history allows them to be directly addressed in the management plan with explanation, reassurance, and advice. Wilk⁹ has suggested four cardinal presenting problems and concerns that (as in Mr Golding's case) patients present with: 1) 'I hurt', 2) 'I can't move', 3) 'I can't work', and 4) 'I'm scared'. Management structured around these concerns and motivation to take an active role

in their recovery will be most beneficial for the patient.³² Fears and misconceptions about LBP should be addressed explicitly and explanation should be clear to allow informed decisions by the patient about their treatment options. The self-limiting nature of LBP and that further investigations are not indicated should be explained to the patient (perhaps with an analogy to an ankle sprain which also would not show up on an x-ray). Activity and continuing to work should be encouraged as pain allows and bed rest discouraged. If they are unable to work, encouragement should be given to return to usual activity and work as soon as possible (this may be before all of the pain has stopped). To help patients to keep active, trials of local cold or heat packs can be tried for short-term relief. Propping the legs up with pillows when in bed may also help in the short-term.¹⁰ Adequate analgesia should also be offered after careful consideration of the severity of pain as well as any contraindications. Paracetamol (preferred) or NSAIDs are recommended first-line treatments. The WHO analgesic ladder should then be followed if additional pain relief is required. If strong opioids are required, referral to a specialist should be considered.

Follow-up & safety netting

Recommendations for follow-up (based on expert opinion) suggest that clinical judgement should be used to decide if and when patients should be followed up.¹⁰ Cases where "yellow flags" have been identified and are therefore at increased risk of developing cLBP may benefit from regular follow-up. In other cases with good prognosis, follow-up may be deemed unnecessary but safety netting should be used to help GPs to deal with uncertainty. After explaining the natural history of LBP, it should be made clear to all patients that if their symptoms worsen or do not improve then they should come back to the GP.

Integration of guidance evidence & clinical case

In Mr Golding's case the benign nature of his LBP was explained and his fears concerning slipped disks and further damage were addressed. Despite voicing a dislike of his job he was keen to return to work. To help with his pain he asked for codeine because he felt that he could not take NSAIDs as they irritated his reflux. After a discussion about the side-effects of codeine (in particular that it can cause drowsiness, impair driving, and should not be mixed with alcohol) and the side-effects of NSAIDs (including an increased risk of GI bleeding). It was agreed that he would try to manage his pain with paracetamol and the other general advice because he did not want to stop driving. Due to the nature of his job, immediate issues such as manual handling, adjusting driving position and work conditions through company health and safety or national back health programmes were discussed.³³ Long-term issues such as weight loss, exercise, and alcohol reduction were also dis-

cussed as they are important for general health and GP advice building upon the rapport built in the consultation may be beneficial in creating the willingness for change.³⁴

Summary

Diagnosis and management in general practice relies heavily upon doctor-patient communication and rapport. Applying population-based evidence to the individual patient can be difficult, but shared understanding of the disease from both the doctor's and patient's contexts facilitates patient satisfaction and concordance with appropriate

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